# WILEY

The Semantics of Questions and the Questions of Semantics: Case Studies in the Interrelations
of Logic, Semantics, and Syntax. by Jaakko Hintikka
Review by: David Harrah
*Noûs,* Vol. 13, No. 1 (Mar., 1979), pp. 95-99
Published by: Wiley
Stable URL: http://www.jstor.org/stable/2214799
Accessed: 16/06/2014 00:21

Jaakko Hintikka, *The Semantics of Questions and the Questions of Semantics: Case Studies in the Interrelations of Logic, Semantics, and Syntax* (Amsterdam: North-Holland Publishing Company, 1976), *Acta Philosophica Fennica* Vol. 28 (1976), No. 4, 200 pp., $17.00.

DAVID HARRAH

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Hintikka's aim is to make a deep study of certain types of English question (i.e., interrogative), both for its own sake and to illuminate the following theses:

(i) (the logical-form thesis) The semantical representations of natural-language sentences can to a large extent be obtained from the structures studied in formal logic.

(ii) (the semantics-based-generation thesis) Semantical representations serve as a basis of the syntactical generation of natural-language sentences.

(iii) (the semantic deep structure thesis) Semantical representations can be identified with syntactically motivated pretransformational deep structures.

(iv) (the meaning preservation thesis) Transformations preserve meaning (with the trivial exception of lexical insertions).

(v) (the anti-lexicalist thesis) Some lexical insertions are not made directly into the abstract semantical representation but only at later stages of the generation. (Hence no pre-lexical deep structure exists in general.)

(vi) (the extreme interpretive thesis) The semantical representation of a sentence is determined by its surface structure.

(vii) (the use-as-pragmatics thesis) All questions of language use belong to pragmatics, not semantics.

(viii) (the activity-as-pragmatics thesis) All questions concerning the nonlinguistic activities associated with language belong to pragmatics, not semantics.

Hintikka's initial analysis of questions builds on ideas previously developed by him and by Åqvist. The logical form of a wh-question (which,

NOÛS 13 (1979)                    95
©1979 by Indiana University

This content downloaded from 62.122.76.48 on Mon, 16 Jun 2014 00:21:22 AM
All use subject to JSTOR Terms and Conditions

who, where, etc.) consists of an imperative operator plus a description of the cognitive situation the questioner wants to be brought about (the latter is the *desideratum* of the question). Thus "Who lives here?" is rendered as "Bring it about that I know who lives here," the phrase "I know who lives here" being the desideratum. "I know who. . ."can be read"For some $x$, I know that $x$. . ." or it can be read "For every $x$, if $x$. . ., then I know that $x$. . ." Hintikka calls this the *two-quantifier interpretation* of wh-operators. The *presupposition* of a question is the result of omitting "I know that" from the existentially interpreted desideratum. For wh-questions, the *matrix* is the presupposition minus the initial quantifier. *Answers* are substitution-instances of the matrix (hence answers are noun phrases).

The main argument in the book centers around multiple questions. Consider

(6.1)   Where did Mary buy what?

According to Hintikka, its desideratum is

(6.2)   I know where Mary bought what.

The latter has eight putative readings, symbolized as:

  (i)    $(\exists x)(\exists y)$KM

  (ii)   $(\exists x)(y)$(M $\supset$ KM)

 (iii)   $(x)[(\exists y)$M $\supset$ $(\exists y)$KM]

 (iv)   $(x)(y)$(M $\supset$ KM)

  (v)    $(\exists y)(\exists x)$KM

 (vi)   $(\exists y)(x)$(M $\supset$ KM)

(vii)   $(y)[(\exists x)$M $\supset$ $(\exists x)$KM]

(viii)  $(y)(x)$(M $\supset$ KM)

where 'K' and 'M' abbreviate 'I know that' and 'Mary bought $y$ at $x$', respectively. Hintikka says that (i) and (v) are logically equivalent and hence collapse into one reading; similarly for (iv) and (viii). He says that (ii) and (iii) are appropriate to "What did Mary buy where?" and not to (6.1). This leaves us with four readings of (6.2)—namely, (i), (iv), (vi), (vii)—and correspondingly four readings of (6.1). Now, if we accept theses (ii) and (iv), we are committed to holding that (6.1) can be generated in at least four ways. Hintikka says it is unrealistic to suppose that this can be done within transformational grammar as we know it today. (p. 96)

The only satisfactory solution to these difficulties, Hintikka argues, is to reverse the approach—drop thesis (ii) and (in effect) follow thesis (vi). He says that one way of carrying out this idea is to use the game-theoretical semantics he has developed elsewhere.

Roughly: With each sentence S of the language we associate a game G(S). A play of the game produces an atomic sentence S' from S. There are two players—Nature, who is trying to produce a false S' (counterexample to

S), and Myself, who is trying to prevent production of a falsehood. In this process Nature controls the instantiation of universal quantifiers and conjunctions, and Myself controls the instantiation of existential quantifiers and disjunctions (but inside a negation the two players reverse roles).

This semantics was developed for artificial languages but can be extended to natural languages. E.g., the (G. some) rule is:

> When the game has produced (special case) a sentence of the form $X$ - some $Y$ who $Z$ - $W$, then the next move may be made by Myself. I choose an individual from D [the domain], give it a name (if it did not have one already), say "$b$". The game is continued with respect to the sentence $X$ - $b$ - $W$, $b$ is a $Y$, and $b$ $Z$.

The (G. knows) rule is:

> If the game has reached a sentence of the form [$a$ knows that $X$] and the world $w'$, Nature may choose an epistemic a-alternative $w''$ to $w'$. The game is then continued with respect to $X'$ and $w''$, where $X'$ results from $X$ by replacing all pronouns referring back to the initial "$a$" [in the given sentence] by "$a$". . . (p. 110)

In the case of wh-phrases the game rules can leave it open which player makes the move. This fact yields precisely the duality of readings corresponding to the two-quantifier interpretation of wh-operators. E.g., the (G. knows wh) rule is:

> When the game has reached the sentence [$a$ knows who $X$] and a world $w'$, then an individual may be chosen either (i) by Myself or (ii) by Nature. Let this individual be given the name "$b$" (if it did not have one already). Then the game is continued with respect to $w'$ and in case (i) with respect to
>
> $b$ $X$ and $a$ knows that $b$ $X$
>
> and in case (ii) with respect to
>
> a knows that b X if b X.

Hintikka says that the game rules operate mainly on the surface structure of the given sentence and serve to "lay bare" the semantics of the sentence. Hence whatever success the game-theoretic semantics has constitutes evidence for thesis (vi) and against thesis (viii) (p. 120)

Hintikka caps his argument by applying his game rules to the sentence (6.2). He says that for this sentence there are four possible readings, which turn out to be equivalent to (6.2) (v)-(viii). The two readings (6.2) (ii) and (iii) are felt to be sometimes acceptable, and he accounts for this in game-theoretic terms as follows. Suppose the choices of $x$ and $y$ are construed as independent of each other (so that the semantics is like that of branching quantifiers). Then either player might just as well move before the other. (pp. 132-3)

Hintikka concludes with further remarks on the eight theses, a discussion of the notion of ambiguity and the methodology connected with it, and

some speculations on the possibility of using the converses of his game-rules as rules of syntactic generation. He says (p. 181):

> The parallelism between game-theoretical semantics and syntax is not complete, but I strongly suspect that it is as complete as is possible in the best of circumstances.

This book is impressive for the boldness of its overall conception (like an attempt to checkmate in six moves), the richness of its mix of ideas, and the aggressiveness of its dialectic. In so short a book one could not hope to present a complete argument or to tie up all the loose ends. Thus there is much unfinished business that must be taken care of before Hintikka's overall argument can be accepted as conclusive. I shall mention five examples.

First, it would be helpful to clarify the usage of terms like 'acceptable' as applied to the data of linguistics. In the course of pages 91-103 Hintikka specifies several putative readings of a question and calls them "not entirely natural," "unnatural," "unacceptable," "rejected," "missing," "not actually acceptable," "sometimes acceptable," "comparatively unacceptable," and "relatively unacceptable."

Second, there are quite a few places where Hintikka's analysis of English sentences needs further amplification. E.g., it is essential to his main argument that (6.2) (ii) and (iii) be judged unnatural, or be acceptable only in terms of informational independence. But suppose I want to learn whether Mary is a knowledgeable tourist (does she know that in Kabul one buys lapis, in Delhi one buys gems and ivory, and so on). Shouldn't I ask "Where did Mary buy what, for example?", meaning "For some examples of places, tell me what Mary bought there," meaning "What did Mary buy in some places, for example?"

Hintikka says his theory has a corollary: relative clauses with split antecedents cannot be restrictive clauses (p. 164). But cf. "Mitsui is an expert on the black bees, and his wife Su is an expert on the blue flowers, that evolved together in Japan."

Third, further argument is needed to support the claim that English questions must be analyzed in imperative-epistemic terms. Many questions *can* be so analyzed, and in some contexts it is fruitful to do so, but is it necessary in all cases? Why not "I'd appreciate it if you'd tell me. . . " or "Please tell me truly. . . " or the like?

Fourth, we need further clarification of, and motivation for, the two-quantifier interpretation of wh-questions. If I say "Harvard is still the pre-eminent American university," and you challenge this by saying "I doubt that. Who is there now?", what you are calling for is not a complete list of people at Harvard, nor just a single example, but rather a list of several examples (and you leave it to me to choose the number).

Consider

(9.1)   Who remembers what Mary bought?

and its desideratum

(9.2)   I know who remembers what Mary bought.

Let 'K', 'R', 'M' abbreviate 'I know that', '$x$ remembers that', and 'Mary bought $y$', respectively. Hintikka says that the following are ruled out (can't be obtained by the game-theoretic rules):

(9.2) (ix)  $(\exists x)(y)(M \supset KRM)$

(x)  $(x)[(\exists y)RM \supset (\exists y)KRM]$

(xi)  $(x)[(y)(M \supset RM) \supset (y)K(M \supset RM)]$

(p. 139)

My own intuition tells me that (ix) would be useful (and what I intend) in the case where: all the bought items are in Mary's purse, and I need one witness who will testify about the items in Mary's purse and whose testimony concerning the bought items will be reliable (I will know it to be true in each case of a bought item). (Compare: "Quick! Who knows what to do in CPR?"— where I need a volunteer to take turns with me in helping the victim, and I'll want to know at the time of application that we are applying the CPR correctly.) Similarly for (x) and (xi): appropriate scenarios can be constructed for each of them.

Fifth, certain aspects of game-theoretic semantics are still somewhat obscure. The games are intended to be not mere mathematical devices useful for computation. Hintikka says that they have a "psychosemantical" reality (p. 15). They involve rule-governed activities on the part of the language user, and some are games of "perfect information." Further, in the game rules for questions, at certain points either player may move (p. 116). But don't the players need some ground for moving in an orderly and rational way? At the very least, don't they need to have some sort of rational understanding of each play of the game during that play? Don't they need to know at each point who made the previous move and what that move was? Don't they need to be able to ask "Who moved?", "What new name was chosen?", and the like? To handle these questions in a rational way, wouldn't they need a semantics, and (if infinite regress is to be avoided) wouldn't such a semantics have to be a non-game-theoretic one?

There are many misprints, but the reader is so occupied in thinking about counterexamples that the misprints go unnoticed. A very stimulating book.[1]

## NOTE

[1]I am grateful to Professor Hintikka for several useful comments on an earlier draft of this study.